



CENTRAL IDENTIFICATION LABORATORY

JPAC FS-3

"Until they are home"

Fact Sheet

The Central Identification Laboratory of the Joint POW/MIA Accounting Command is the largest skeletal identification laboratory in the world and is staffed by more than 30 anthropologists and four forensic odontologists. The CIL, located at Hickam Air Force Base, Hawaii, is an integral part of JPAC's mission to achieve the fullest possible accounting of all Americans missing as a result of the nation's past conflicts. In addition to identifying remains of missing Americans, CIL scientists also provide support to humanitarian missions around the world as well as to local, state and federal law enforcement agencies.

IN THE FIELD



Anthropologists travel to sites located around the world to recover American remains and material evidence. Missions last 35 to 60 days depending on

location, terrain, and recovery methods. At a recovery site, anthropologists direct the excavation much like a detective oversees a crime scene. Missions are unique, but there are certain things that each recovery has in common. The first step is for the anthropologist to determine the site perimeter. Sites can be as small as

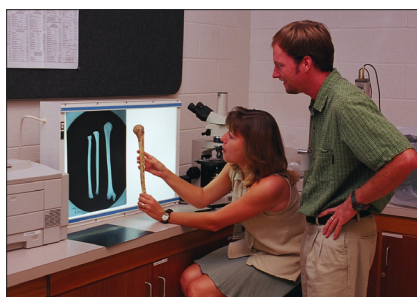


a few meters for individual burials to areas exceeding the size of a football field for aircraft crashes. Then, a grid system is established. Careful excavation follows. Every inch of soil dug from the site is screened for any potential remains, any life support equipment or any material evidence. After initial analysis at the site, all critical evidence is brought back to the lab for additional examination.



IN THE LAB

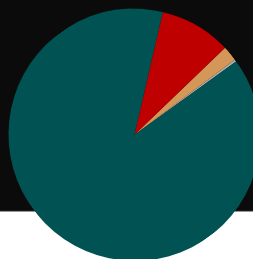
The forensic anthropologist assigned the case in the laboratory is not the individual who completed the recovery in the field. This entire procedure is carried out "blind," meaning that the anthropologist does not know the suspected identity of the individual under analysis and knows only those details that are required to select the appropriate scientific techniques (e.g. the approximate era of the loss incident). Blind analysis is completed in order to prevent any subconscious bias from influencing the scientist's analysis. CIL anthropologists examine all recovered skeletal remains in order to produce a biological profile. This profile includes the sex, race, age at death, and height of the individual. Anthropologists



gists also analyze any trauma caused at or near the time of death and pathological conditions of bone such as arthritis or previously healed fractures. Anthropologists are also responsible for the analysis of

material evidence such as military uniforms, personal effects, and identification tags.

MISSING AMERICANS FROM PAST WARS



World War II — 78,000
Korean War — 8,100
Vietnam War — 1,800
Cold War — 120
Gulf War — 1

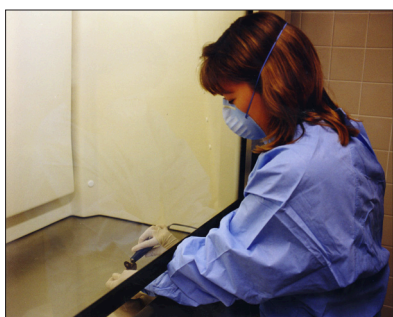
FORENSIC ODONTOLOGY



Dental remains are extremely important to the identification process, both because they offer the best means of positive identi-

fication of an individual and because they are durable and may contain surviving mitochondrial DNA. An individual's dental records are often the best means of identification due to the unique characteristics that are available from teeth, including commonly observed dental treatments such as extraction, fillings, crowns, and partial dentures. The dental records from an individual's personnel file are compared with remains received at the laboratory by JPAC's forensic odontologists. Ideally, the forensic odontologist will have antemortem (before death) X-rays to use for comparison, but even handwritten charts and treatment notes can be critical to the identification process.

DNA



The CIL uses mtDNA in more than half of its cases. Successful use of mtDNA for identifications requires a family reference sample. The process of obtaining this sample can add

over a year to the identification process. All mtDNA samples taken at the CIL are analyzed at the Armed Forces DNA Identification Laboratory (AFDIL), located in Rockville, Md. AFDIL extracts and amplifies surviving mtDNA, and determines the genetic pattern present. This pattern is compared with patterns from family reference samples given from each (suspected) unidentified service member's family.

CIL FACILITIES



The Central Identification Laboratory is the only skeletal laboratory accredited by the American Society of Crime Laboratory Directors. Additional CIL special capabilities include: alternate light source analy-

sis, scanning electron microscopy, digital radiography, bone histological analysis, ground penetrating radar, video-superimpositioning, and a full array of underwater survey equipment. The CIL currently identifies about two Americans a week or about 100 per year. Once an identification is complete, the remains are returned to the family for burial.

OPPORTUNITIES



The Central Identification Laboratory is always looking for talented and motivated scientists. Anthropologists with experience in

human skeletal analysis and archeological excavation are encouraged to apply if interested in this exciting and rewarding mission. The laboratory is also seeking laboratory technicians with experience in human skeletal analysis and a well qualified cartographer. For more information about these positions, visit www.jpac.pacom.mil/CIL/Employment.htm. Many of the anthropologists who have joined the JPAC/CIL team have done so through the Oak Ridge Institute for Science and Education fellowship program. To find out more about the ORISE program, visit www.ornl.gov/orise.htm. For specific questions, email Ms. Sabrina Ta'ala at Sabrina.Taala@jpac.pacom.mil.